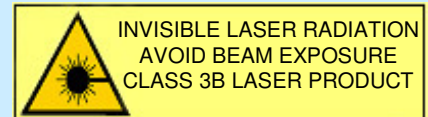


14 Gbps VCSEL 850 nm 1x1/4/12 chip



- ◆ Vertical Cavity Surface-Emitting Laser
- ◆ Cathode on top side
- ◆ Unsealed 85% r.H./85°C certified
- ◆ 1x1, 1x4, 1x12 chips



Preliminary

ELECTRO-OPTICAL CHARACTERISTICS

Chip Temperature = 25°C unless otherwise stated.

| PARAMETER | SYMBOL | UNITS | MIN | TYP | MAX | TEST CONDITIONS |
|----------------------------------|--------------------------------|----------|-----|------|------|------------------------------------|
| Emission wavelength | λ_R | nm | 840 | 850 | 860 | Popt = 1.5 mW |
| Threshold current | I_{th} | mA | | 0.6 | | |
| Threshold voltage | U_{th} | V | 1.4 | | 1.8 | |
| Slope Efficiency | η_s | W/A | | 0.4 | | |
| Variation of η_s over temp. | $\Delta\eta_s/\eta_s/\Delta T$ | %/°C | | -0.5 | | Tchip = 0...85°C |
| Laser forward current | Iop | mA | 3.0 | 4.4 | 6.0 | Popt = 1.5 mW |
| Differential series resistance | R_{S_25} | Ω | | 50 | | Popt = 1.5 mW |
| 3dB modulation bandwidth | v_{3dB} | GHz | | 11 | | Popt = 1.5 mW |
| Rise and fall time | t_R/t_F 20/80 | ps | | 30 | | Popt = 1.5 mW |
| Relative intensity noise | RIN | dB/Hz | | | -128 | |
| Wavelength tuning over current | | nm/mA | | 0.3 | | |
| Wavelength tuning over temp. | | nm/K | | 0.07 | | |
| Thermal resistance | $R_{Thermal}$ | K/mW | | 2.5 | | |
| Beam divergence | θ | ° | 20 | | 30 | 1/exp ² , Popt. = 1.5mW |
| Spectral bandwidth | $\Delta\lambda_1$ | nm | | | 0.65 | Popt = 1.5 mW |

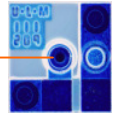
ABSOLUTE MAXIMUM RATINGS

| | |
|------------------------------|---------------|
| Storage temperature | - 40 .. 125°C |
| Operating temperature | 0 .. 85°C |
| Electrical power dissipation | 20 mW |
| Continuous forward current | 12 mA |
| Reverse voltage | 8V |
| Optical output power | 6mW |

NOTICE: Stresses greater than those listed under „Absolute Maximum Ratings“ may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other condition beyond those indicated for extended periods of time may effect device reliability.

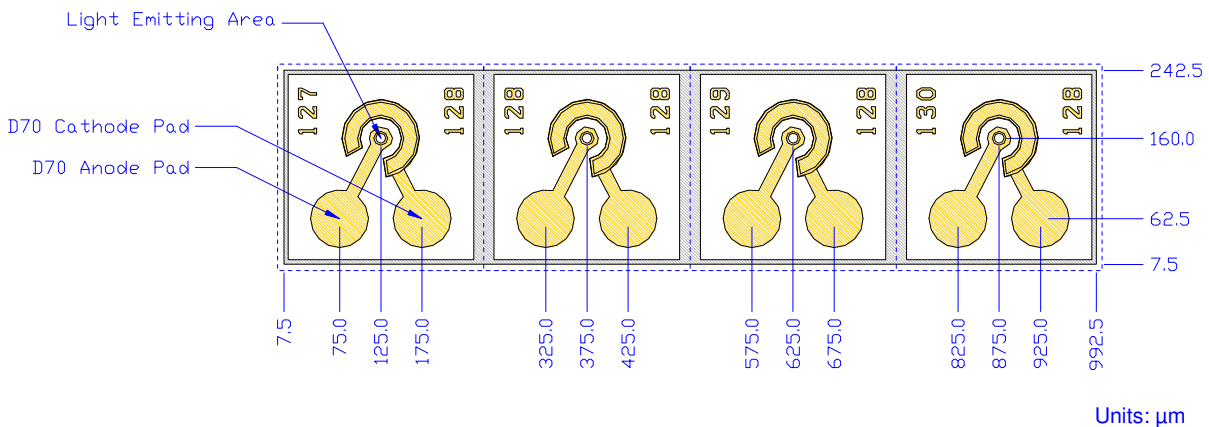


ATTENTION: Electrostatic Sensitive Devices
Observe Precautions for Handling



Single VCSEL chip:

- Description:** VCSEL chip, single channel
Type: ULM850-14-TT-N0101U
Mounting: anode and cathode wire bonding on front side
Dimensions: 235 μm x 235 μm
Thickness: 150 μm



VCSEL line arrays:

- | | | |
|---------------------|--|---------------------------------------|
| Description: | 1 x 12 VCSEL line array | 1 x 4 VCSEL line array |
| Type: | ULM850-14-TT-N0112U | ULM850-14-TT-N0104U |
| Wiring: | common cathodes | common cathodes |
| Dimensions: | 235 μm x 2985 μm | 235 μm x 985 μm |
| Thickness: | 150 μm | 150 μm |